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## ORIGINAL ARTICLE

### Diet quality of preschool children aged 2 to 5 years living in the urban area of Pelotas, Brazil



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#### KEYWORDS

Preschool;  
Indexes;  
Food habits;  
Diet

#### Abstract

**Objective:** To assess the dietary quality of preschool children in the urban area of Pelotas, Rio Grande do Sul, southern Brazil.

**Methods:** Dietary quality was measured according to the Healthy Eating Index (HEI), adapted to Brazil. Food consumption was obtained using the Food Frequency Questionnaire (FFQ). The index score was obtained by a score, ranging from 0 to 100, distributed in 13 food groups that characterize different components of a healthy diet. The better the quality of the diet, the closer the score is to 100.

**Results:** Dietary quality was evaluated in 556 preschoolers. The mean HEI score value was 74.4 points, indicating that diets need improvement. The mean scores were significantly higher among girls and in children from families with income between one and less than three minimum wages.

**Conclusions:** The children showed vegetable consumption below the recommended level, while foods of the food group of oils and fats, as well as the group of sugars, candies, chocolates and snacks, were consumed in excess. It is important to reinforce guidelines to promote healthier eating habits, which may persist later in life.

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#### PALAVRAS-CHAVE

Pré-escolar;  
Índices;  
Hábitos alimentares;  
Dieta

#### Qualidade da dieta de pré-escolares de 2 a 5 anos residentes na área urbana da cidade de Pelotas, RS

#### Resumo

**Objetivo:** Avaliar a qualidade da dieta de pré-escolares residentes na área urbana da cidade de Pelotas, Rio Grande do Sul, Brasil.

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**Métodos:** A qualidade da dieta foi avaliada de acordo com o Índice de Alimentação Saudável (IAS), adaptado para o Brasil. O consumo alimentar foi medido por meio de Questionário de Frequência Alimentar. O escore do índice foi obtido por uma pontuação distribuída em 13 grupos alimentares, que caracterizam diferentes aspectos de uma dieta saudável, variação de 0 a 100 pontos. Quanto mais próximo de 100, melhor será a qualidade da dieta.

**Resultados:** A qualidade da dieta foi avaliada em 556 pré-escolares. O valor médio do escore do IAS foi de 74,4 pontos. Isso indica que as dietas necessitam ser melhoradas. As médias dos escores foram significativamente maiores entre as meninas e entre crianças provenientes de famílias com renda familiar entre um e menos de três salários mínimos mensais.

**Conclusões:** As crianças apresentaram consumo de verduras e legumes abaixo da recomendação, enquanto os alimentos do grupo dos óleos e gorduras, bem como do grupo dos açúcares, balas, chocolates e salgadinhos, foram consumidos em excesso. É importante reforçar orientações para promover um hábito alimentar mais saudável, que poderá perdurar em etapas posteriores da vida.

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## Introduction

Adequate nutrition in childhood has an impact on the child's growth and physiological development, health and welfare. At this phase, a balanced diet becomes very important, as they are going through a phase of growth, development, and formation of personality and eating habits.<sup>1</sup>

Parents influence the development of their children's eating habits, as they are responsible for the process of introducing foods, the dietary pattern offered to the child and their attitudes toward food.<sup>2</sup> Children's food preferences are learned from repeated experiences during the consumption of certain foods. These habits have an effect on their food intake, subject to the physiological consequences and the social context in which the child lives. In this phase they prefer high-calorie foods, as they bring greater satiety and ensure the necessary energy supply for basic needs.<sup>3</sup>

In the last few decades, the population's food quality has been evaluated through dietary indexes. These consist of a food analysis method aiming to determine its quality through one or more parameters simultaneously: adequate nutrient intake, number of servings consumed by each food group and the amount of different food items present in the diet.<sup>4</sup> Most of these indices were developed in the United States, and are being adapted and used in other countries.<sup>5</sup> Among the most often cited in the literature are: nutrient content,<sup>6</sup> dietary variety score,<sup>7</sup> the Household Dietary Diversity Score (HDDS),<sup>8</sup> the Diet Quality Index (DQI),<sup>4</sup> the Healthy Eating Index (HEI),<sup>9</sup> and the revised Diet Quality Index.<sup>10</sup>

The HEI was created in 1995 by the US Department of Agriculture, with the goal of building a global diet quality index that would incorporate the nutritional needs and dietary guidelines for US consumers in a single measure.<sup>11</sup> The HEI consists of ten items, which are based on different aspects of a healthy diet, and was adapted to Brazil based on the Dietary Guidelines for the Brazilian Population (DAPBs)<sup>12</sup> by Domene et al.<sup>13</sup> for use with preschool children aged two to six years.

This study evaluates the dietary quality of a sample of preschoolers in Pelotas, state of Rio Grande do Sul, Brazil, using the HEI.

## Method

This study uses data on the diet of preschoolers participating in a population-based cross-sectional study, which consisted as the fourth assessment of a time series aiming to assess the effect of iron fortification of wheat flour and corn meal on anemia in children aged <six years, carried out in Pelotas, Brazil in 2008.<sup>14</sup> Methodological data are described in a previous publication.<sup>14</sup>

The interview was carried out by trained nutritionists, with the child's mother or guardian, using a pre-coded questionnaire. Demographic variables were collected (gender and age of the children in months) as well as socio-economic (family income in minimum wages), maternal schooling (in years) and dietary variables. Food frequency questionnaire (FFQ), a quantitative tool with 56 food items distributed in cereals, legumes, vegetables, fruits, dairy products, meat and meat products, fats, sugars and other foods, with a recall period of one year, was developed for the study, and used to assess food consumption and the dietary quality. The FFQ was validated using three 24-h recalls. The de-attenuated Pearson's correlation coefficients were all equal to or greater than 0.50 for macronutrients calcium, iron, sodium, vitamin C, cholesterol and saturated fat (unpublished data).

Dietary quality was analyzed using the Healthy Eating Index (HEI) proposed by Domene et al.<sup>13</sup> Thus, a score was generated from the points obtained for the 13 components. The first eight were related to the food groups: (1) cereals; (2) vegetables; (3) fruits and fruit juices; (4) milk and dairy products; (5) meat and eggs; (6) legumes; (7) oils and fats, and (8) sugars, candies, chocolates and snacks. These eight components contribute with 50% of the total score. To adapt the HEI, which originally classifies the food into

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